








# Supplementary Figure 1 (Ikeda Y et al)

(a)

Gene	Disease	Number of rare variants		Samples														
		Cases	Controls	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
<i>PTEN</i>		0	0															
<i>KLLN</i>	Cowden syndrome	0	0															
<i>SDHB</i>			0	1														
<i>SDHC</i>	Hereditary paraganglioma / Pheochromocytoma	0	2															
<i>SDHD</i>			0	1														
<i>BRCA1</i>	Hereditary breast and ovarian cancer syndrome	1	20									# 1						
<i>BRCA2</i>			2	41									# 3,4					
<i>CDKN2A</i>	Familial atypical multiple mole melanoma syndrome	0	6															
<i>MLH1</i>	Lynch syndrome	0	11															
<i>MSH2</i>		1	4									# 2						
<i>MSH6</i>		0	13															
<i>PMS2</i>		0	8															
<i>APC</i>	Familial adenomatous polyposis	0	40															
<i>MUTYH</i>			0	9														
<i>STK1(LKB1)</i>	Peutz-Jeghers syndrome	0	0															
<i>CDH1</i>	Hereditary diffuse gastric cancer	1	5										# 5					
<i>TP53</i>	Li-Fraumeni syndrome	0	4															
<i>VHL</i>	Von Hippel Li syndrome	0	1															
<i>RB1</i>	Retinoblastoma	0	12															

 Mutation

(b)

	Gene	Mutation	Polyphen2 HumDiv	LRT score	MutationTaster	Polyphen2 HumVar	SIFT
Case9	#1	<i>BRCA1</i> L523M					
	#2	<i>MSH2</i> I169V					
Case10	#3	<i>BRCA2</i> N1228D					
	#4	<i>BRCA2</i> R2034C					
Case11	#5	<i>CDH1</i> G693S					

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